Hancock Farmland Investor

August 2018

The Investable Farmland Universe: 172 million hectares, valued at $1.5 trillion

Understanding the overall size, structure and geographic distribution of global farmland suitable for institutional investors is necessary information for the evaluation of how various farmland investments fit in an overall portfolio of investments. The Hancock Natural Resource Group (HNRG) conducted an inventory of global investable farmland, quantifying the value of regional investable farmland to be $1.5 trillion as of May 2018. For the U.S., the available data allowed a more granular analysis which broke out and quantified the area and value for row and permanent crops.

We estimated the investable universe of farmland with the objectives and risk tolerances of institutional investors in mind. Consequently, the investable universe includes: core investment geographies that offer a relatively secure business environment; and ownership categories and crop types which have the necessary scale for institutional farm management. Countries challenged by uncertain political, economic or social situations, or deemed to be difficult locations to conduct business, were not included in the universe, even if they possess extensive and productive farmland properties. For example, Ukraine was not included at this time, despite its significant current crop production and potential for future expansion. Likewise, where data was available, crops which did not have sufficient institutional scale were excluded, for instance, in the U.S., asparagus, broccoli, and celery are produced on small-sized farms and, even with significant consolidation, would not have sufficient scale.

Table 1. Type of Cropland by Country (million hectares)

	Arable	Harvested	Investable
United States	155	89	40
Brazil	83	59	46
Western Europe	82	46	23
Canada	50	37	12
Australia	47	24	12
Argentina	41	28	27
*Other**	*45*	*34*	*12*
**Eastern Europe*	*27*	*17*	*8*
**South Africa*	*13*	*12*	-
**Uruguay*	*2*	*2*	*2*
**Chile*	*2*	*2*	*1*
**New Zealand*	*1*	*1*	-
Total Value	**501**	**317**	**172**

Sources: ABARES 2014, USDA NASS 2012, Informa 2013 and 2015, Eurostat 2015, Agri Land 2015, FAO 2012, ODEPA 2012-2015, Statistics Canada 2015, Canadian Agricultural Census 2006, US Agricultural Census 2012, Brazil Agricultural Census 2006, Uruguay Agricultural Census 2000, Argentina Agricultural Census 2002, INE Agricultural Census 2007, NZ Agricultural Census 2012 and HAIG Research May 2018

Farmland Area Estimates

For each selected country, estimates were determined of arable area (suitable for farming) and harvested area (currently in production). Data on arable area is generally available from individual country sources, and is roughly comparable across countries. Harvested acreage was sourced from country-specific reports and USDA statistics, using the most recent year available. The final filters applied to determine the investable land base were farm size, crop type, and regulatory barriers to institutional investment. Availability of data to apply these final filters were mostly limited to the U.S. The availability of crop-specific data for the U.S. allowed a more refined estimate of investable farmland area, and an expanded crop-specific analysis measuring the area and value for row-crop (planted annually) and permanent crop (tree, bush and vine) farmlands.

(Continued on page 2)

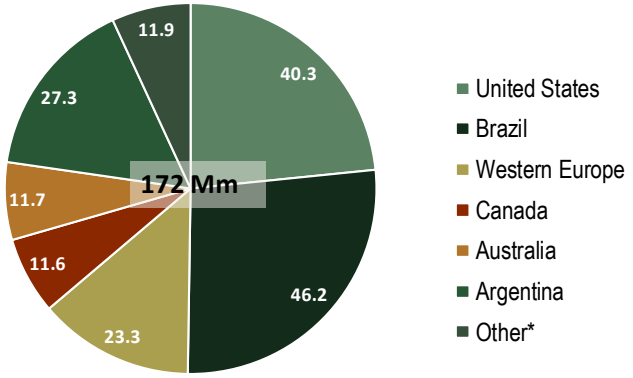
This country-by-country estimate of the farmland investable universe includes over a dozen countries with a total investable universe of 172 million hectares. Investable farmland represents 34% of the arable area and 54% of currently producing farmland (Table 1, page 1). Brazil has the largest investable land base, at 46 million hectares, followed by the United States with 40 million, and taken together these two countries account for about 50% of the total universe of investable farmland (Chart 1).

Values per investable hectare were estimated for individual countries using a combination of market-observed prices, primary data sources, and in some cases secondary sources[1]. Land values vary widely within and between different countries and estimation required analysis of crop type, farm size, and potential for conversion to higher valued land uses. In addition, a country's average per hectare farmland value reflects depth and access to markets, quality of transportation systems and port facilities, and the overall business environment. The availability and depth of data on these value-related parameters varied widely between countries. In order to calculate the global investable universe, we combined the estimate of the area of investable farmland with per hectare value, to get an estimated value of $1,485 billion (Chart 2).

Brazil has the largest investable land base, at 46 million hectares, followed by the United States with 40 million

Half of the Investable Universe of Farmland Area is in Brazil and the U.S.

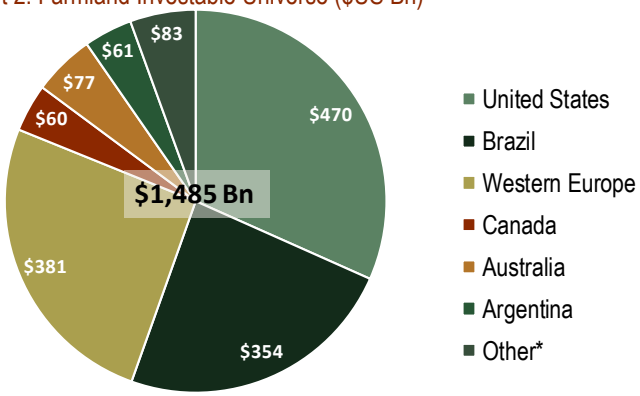
Chart 1: Farmland Investable Universe (Mm hectares)



*Other includes Eastern Europe, Uruguay, Chile, and New Zealand
Sources:ABARES 2014, USDA NASS 2012, Informa 2013 and 2015, Eurostat 2015, Agri Land 2015, FAO 2012, ODEPA 2012-2015, Statistics Canada 2015, Canadian Agricultural Census 2006, US Agricultural Census 2012, Brazil Agricultural Census 2006, Uruguay Agricultural Census 2000, Argentina Agricultural Census 2002, INE Agricultural Census 2007, NZ Agricultural Census 2012 and HAIG Research May 2018

The Global Investable Universe of Farmland is $1.5 trillion

Chart 2: Farmland Investable Universe ($US Bn)



*Other includes Eastern Europe, Uruguay, Chile, and New Zealand
Sources:ABARES 2014, USDA NASS 2012, Informa 2013 and 2015, Eurostat 2015, Agri Land 2015, FAO 2012, ODEPA 2012-2015, Agri-Food Economic Systems 2015,Statistics Canada 2015, Canadian Agricultural Census 2006, US Agricultural Census 2012, Brazil Agricultural Census 2006, Uruguay Agricultural Census 2000, Argentina Agricultural Census 2002, INE Agricultural Census 2007, NZ Agricultural Census 2012 and HAIG Research May 2018

Row and Permanent Crops in the United States

The depth of crop-specific data allowed a deeper level of analysis for the United States' 40.3 million investable hectares of agricultural land, quantifying the area and the value for permanent and row-crops. The minimum U.S. farm size for investable row-crop farmland was set at 200 hectares, and at 100 hectares for investable permanent-crops. Eighteen states were excluded, due to regulatory or tax policies unfavorable to institutional/corporate farmland ownership[2].

Thirty different row crops were analyzed, and the top three—corn, soybeans, and wheat— were found to account for nearly three quarters of the U.S.' investable row-crop farmland base. The next 20 most widely grown row-crops accounted for the remaining quarter of the U.S. row-crop farmland base. Our U.S. analysis included 14 permanent-crop types; and similar to row-crops, the three largest permanent-crop types accounted for the majority of the

(Continued on page 3)

1.Sources include Informa 2013 and 2015, U.S. Agricultural Census 2012, USDA NASS 2012, Canadian Agricultural Census 2006, Statistics of Canada 2015, Agri-Food Economic Systems 2015, Agri Land 2015, ODEPA 2012-2015 and INE 2007).
2. Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Hawaii, Alaska, Iowa, Kansas, Minnesota, North Dakota, South Dakota and Oklahoma

investable permanent-crop farmland base. The estimated acreage of U.S. row and permanent crops is tabulated on Tables 2 and 3.

Hancock Agricultural Investment Group's (HAIG's) extensive internal knowledge base of actual transactions values was used to set per area values specific for U.S. row and permanent-crops. Annually planted row-crops represent 98% of the U.S. total investable farmland area (Chart 3), but a substantially smaller proportion of the total value of the U.S. investable farmland resource (85%). HNRG estimated the average value of U.S. permanent-cropland at ~$75,000 per hectare, which is nearly seven times higher than the average value of U.S. row-cropland. The high per acre value of permanent cropland boosted the share of permanent cropland to 15% of the overall value of U.S. investable farmland.

Land values vary widely within and between different countries and estimation required analysis of crop type, farm size, and potential for conversion to higher valued land uses.

Table 2: Row Crop Farmland >200 Hectares

Crop	Total Hectares (Millions)
Corn	12.16
Soybeans	10.26
Wheat	6.98
Cotton	2.82
Hay (exc. Alfalfa)	2.08
Alfalfa	1.28
Rice	0.79
Sorghum	0.67
Other	2.27
Total	**39.31**

Sources: USDA NASS 2012, US Agriculture Census 2012 and HAIG Research May 2018

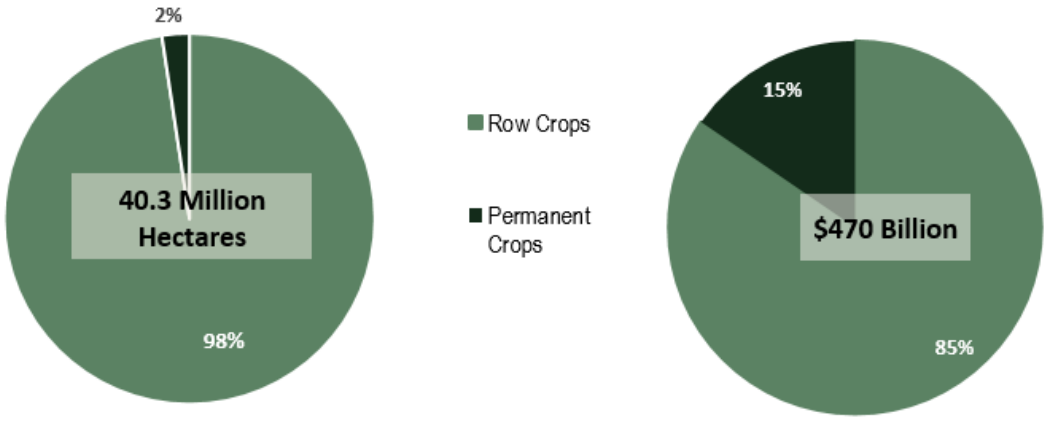
Table 3: Perm Crop Farmland >100 Hectares

Crop	Total Hectares (Millions)
Grapes	0.25
Almonds	0.23
Oranges	0.18
Pecans	0.09
Walnuts	0.05
Apples	0.05
Grapefruit	0.02
Pistachio	0.02
Other	0.06
Total	**0.96**

Sources: USDA NASS 2012, US Agriculture Census 2012 and HAIG Research May 2018

U.S. Permanent Crops are a Small Percentage of Overall U.S. Farmland

Chart 3: U.S. Row and Permanent Crop Farmland by Area and Value

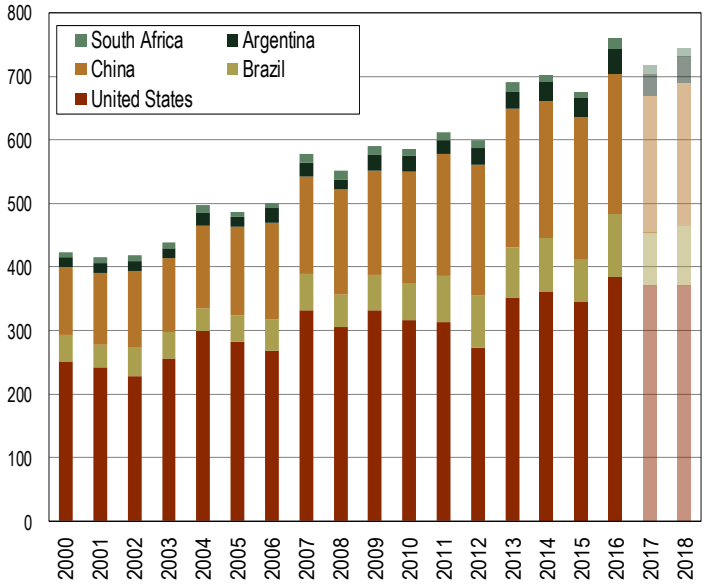


Sources: USDA NASS 2012, US Agriculture Census 2012 and HAIG Research May 2018

Sources: Our estimation process drew upon a variety of published sources on farmland area, ownership category, and harvested farmland size. Key references include: ABARES 2014, USDA NASS 2012, Informa 2013 and 2015, Eurostat 2015, Agri Land 2015, FAO 2012, ODEPA 2012-2015, Agri-Food Economic Systems 2015,Statistics Canada 2015, Canadian Agricultural Census 2006, US Agricultural Census 2012, Brazil Agricultural Census 2006, Uruguay Agricultural Census 2000, Argentina Agricultural Census 2002, INE Agricultural Census 2007, NZ Agricultural Census 2012.
All HAIG Research on pages 1-3 is as of May 2018.
When possible, multiple sources, including internal experiences and knowledge, were used to cross-check and verify data. In addition, internal proprietary data from HAIG transactions and operations were used to estimate permanent cropland values in the U.S.

2018 Corn production to rebound from poor conditions in 2017

Figure 1: Annual Corn Production Estimates, Major Producers (Million Metric Tons)



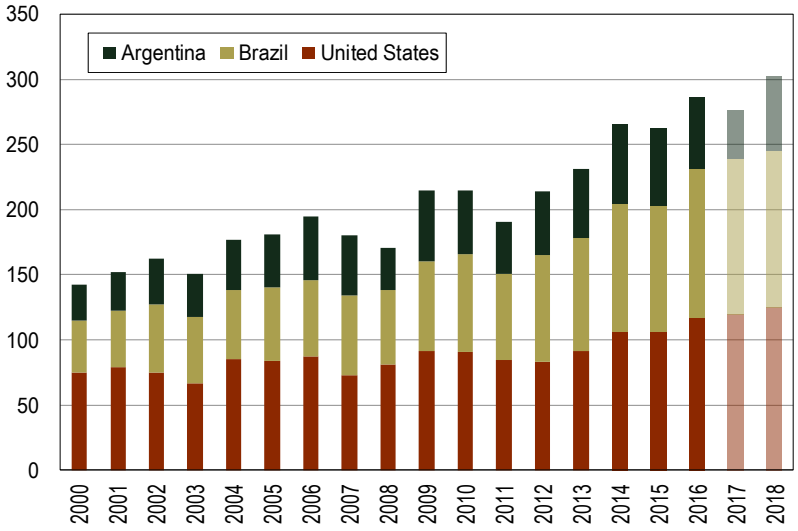
Source: USDA WASDE as of August 2018. 2017 is estimated and 2018 is projected. Years are marketing years.

The 2017 final global corn production is estimated to have decreased slightly from 2016 to 1.033 billion MT. Decreased production in: South Africa (21%); Argentina (20%); Brazil (16%); U.S. (4%); and China (2%). The production decline in 2017 was mainly a result of a drought in Argentina and a smaller harvest of Brazil's second corn crop.

2018 is projected to rebound from 2017 to 1.061 billion MT with weather conditions in Brazil and Argentina normalizing. U.S. production is projected to decrease slightly to 370.5 MMT. China's production is projected to reach a new record of 225 MMT. South Africa production is projected to remain at a similar level as last year, at 13.5 MMT.

Drought in Argentina Decreases Soybean Production in 2017

Figure 2: Annual Soybean Production Estimates, Major Producers (Million Metric Tons)



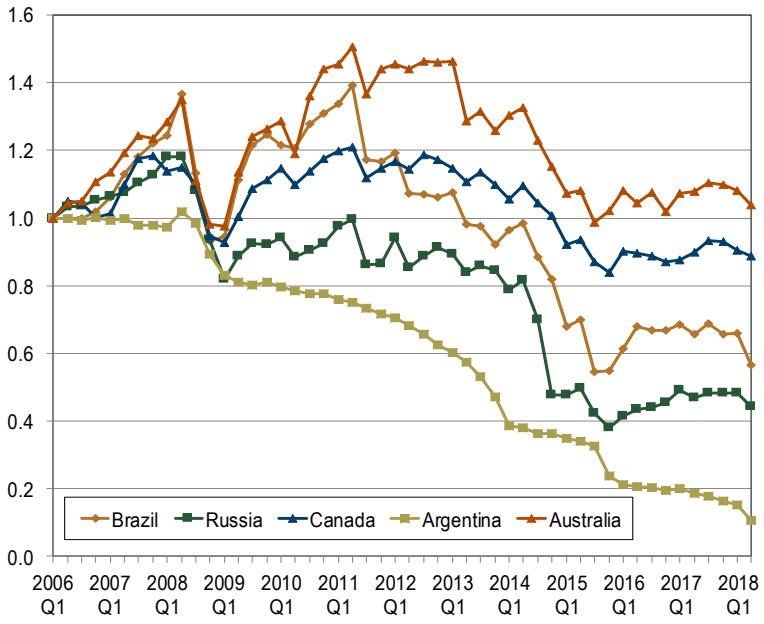
Source: USDA WASDE as of August 2018. 2017 is estimated and 2018 is projected. Years are marketing years.

In 2017, global soybean production contracted and the final estimates are expected to register a decrease by 3% to 337 MMT. The decline in production in 2017 is mainly a result of the drought in Argentina, where production is estimated to have declined by 33% to 37 MMT. Production in the U.S. and Brazil is estimated to show a slight increase and reach 119.5 MMT in both countries.

The 2018 global soybean production is projected to rebound to 367 MMT (9% from the previous year), mainly because of soybean production in Argentina normalizing to 57 MMT. U.S. production is projected to increase by 4% to 124.8 MMT. Production in Brazil is projected to increase slightly to 120.5 MMT.

U.S. Dollar Appreciates Against Competing Currencies

Figure 3: Quarterly Exchange Rates Between USD and Agricultural Currencies (Indexed to 1 at 2006: Q1)



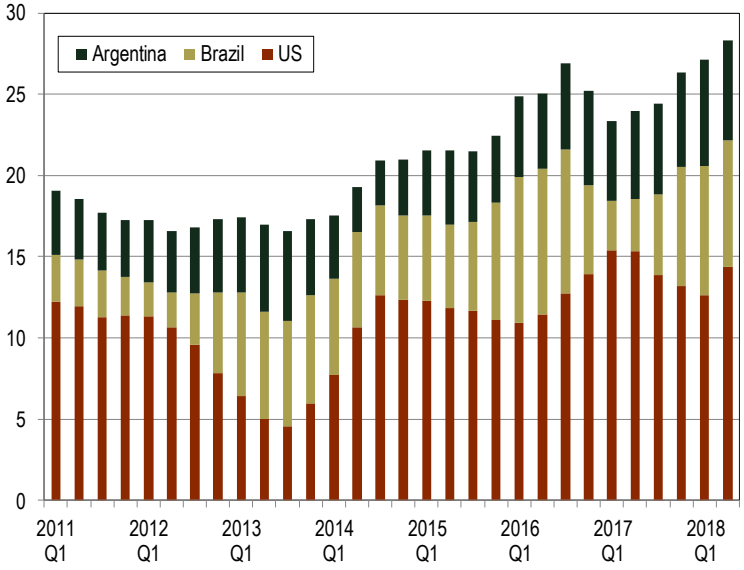
Source: Macrobond as of Q2 2018

The USD has appreciated against competing currencies in Q2 2018. When comparing the strength of the USD to competitive currencies between Q1 2018 and Q2 2018:

- The USD appreciated slightly against the Canadian and Australian dollar. The implications of U.S. protectionism acted as a headwind for the Canadian and Australian currencies.
- The USD appreciated by 30% against the Argentinian Peso, which was impacted by a corruption scandal in Argentina that has led to several arrests and the depreciation of the peso.
- The USD appreciated by 14% against the Brazilian real, as the Brazilian truckers strike and the upcoming election have created uncertainty about the economy.
- The USD appreciated by 9% against the Russian ruble. The weak fundamentals of the Russian economy continue to keep the ruble low relative to the dollar.

U.S. Corn Exports Benefit From Reduced Production in Brazil, Argentina and Russia in 2017 and 2018

Figure 4: Four Quarter Moving Average Corn Exports, Major Producers (Million Metric Tons)

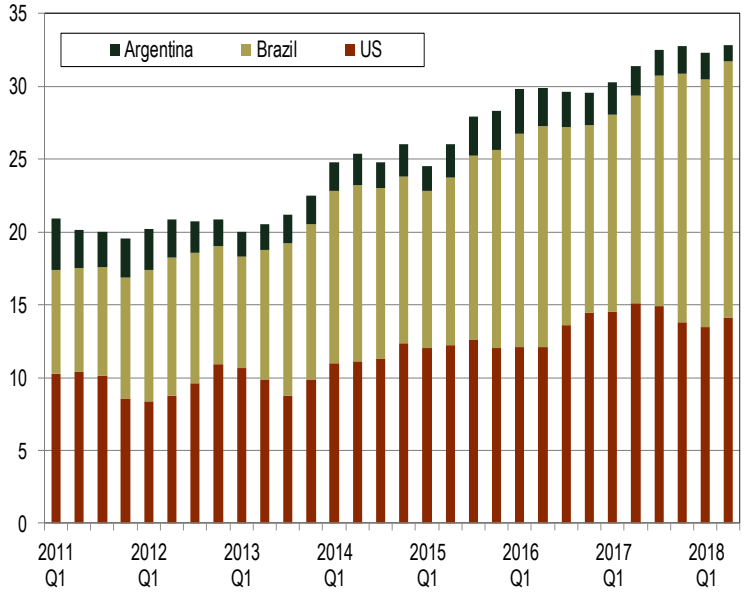


U.S. volume of corn exports in Q2 2018 averaged 14.36 MMT (a four-quarter moving average), a decrease of 6.5% since last year but a 14% increase since last quarter. In the last quarter, the U.S. benefited from reduced exports from competing countries, such as Brazil, Argentina and Russia. The effects of the Chinese tariffs on U.S. corn are likely to be moderate due to the relatively low quantity of corn that the US exports to China. Brazil's export volume of corn, at 7.81 MMT (a four quarter moving average), is an increase of 144% from last year and a 2.2% decrease from last quarter. Corn export volumes from Argentina increased by 14% since last year and decreased by 6.1% from last quarter to 6.15 MMT (a four-quarter moving average). The drought in Argentina has decreased corn exports from Argentina in the 2017/18 marketing year.

Sources: FAS GATS, Comexstat, and Ministry of Agroindustry as of Q2 2018

U.S. Soybean Exports Face Competition from Brazil

Figure 5: Four Quarter Moving Average Soybean Exports, Major Producers (Million Metric Tons)

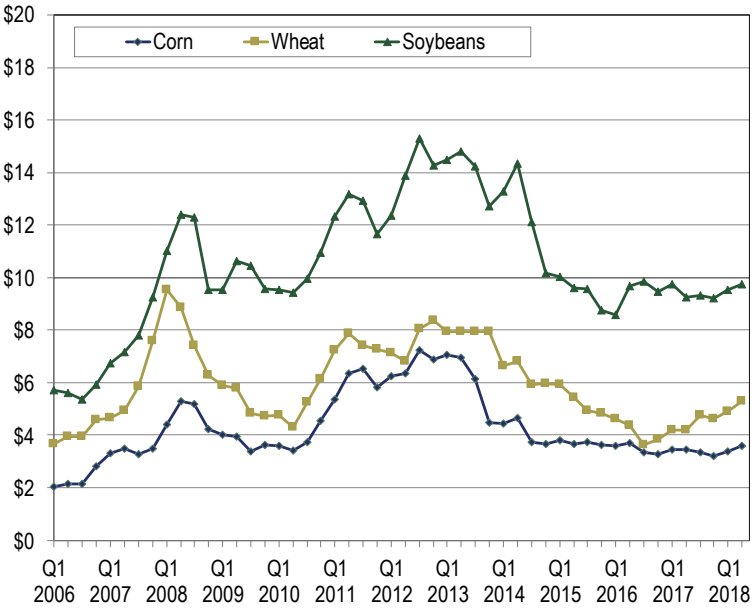


Soybean exports volumes from the U.S. reached 14.1 MMT (a four-quarter moving average), a decrease of 6.6% over last year and an increase of 5.1% over last quarter. U.S. soybean exports over the last quarter were boosted by a record 2017/18 crop and high international demand, driven by a weak soybean crop in Argentina and large discounts for U.S. soybeans relative to Brazil. Brazil exported 17.6 MMT of soybeans (a four quarter moving average), an increase of 23.6% from last year, and up 3.6% from last quarter. Brazil is poised to benefit the most from the Chinese tariff on U.S. soybeans as it fills the gap in demand left by the tariff. Soybean exports from Argentina, at 1.1 MMT (a four-quarter moving average) decreased 45.7% from last year, and decreased by 41.3% from last quarter. The drought in Argentina has curbed soybean exports.

Sources: FAS GATS, Comexstat, Ministry of Agroindustry as of Q2 2018

Wheat Row Crop Prices Increase as a Result of a Drought in Europe

Figure 6: Row Crop Prices ($US per bu)

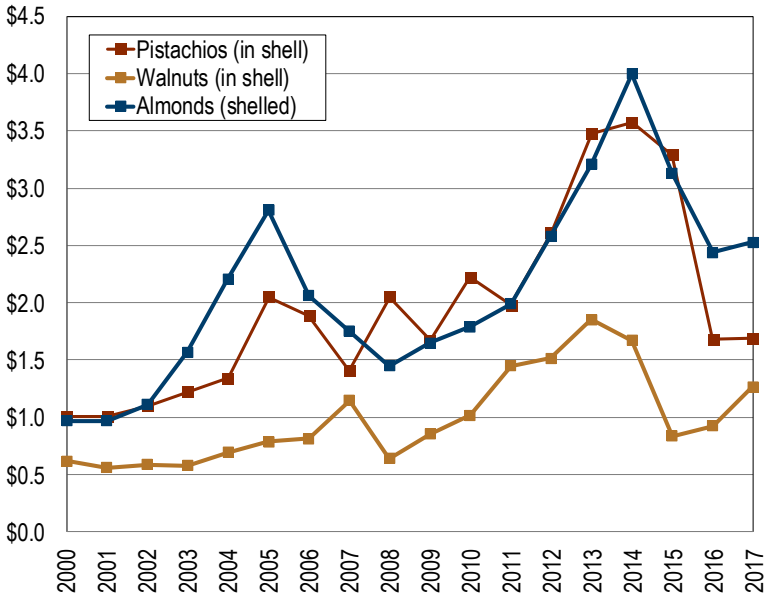


The drought in Europe helped to increase corn, soybeans and wheat prices in Q2 2018. Declines in European production led to higher exports out of the U.S., which helped to reduce U.S. stocks. Wheat prices have increased by 25.9% from last year to $5.28/bu, soybean prices have increased by 5.5% to $9.74/bu and corn prices have increased by 5.0% to $3.61/bu.

Source: USDA NASS as of Q2 2018

Nut Prices Increase in 2017, Led By Walnuts

Figure 7: Annual U.S. Average Grower Tree Nut Prices ($US per lb.)

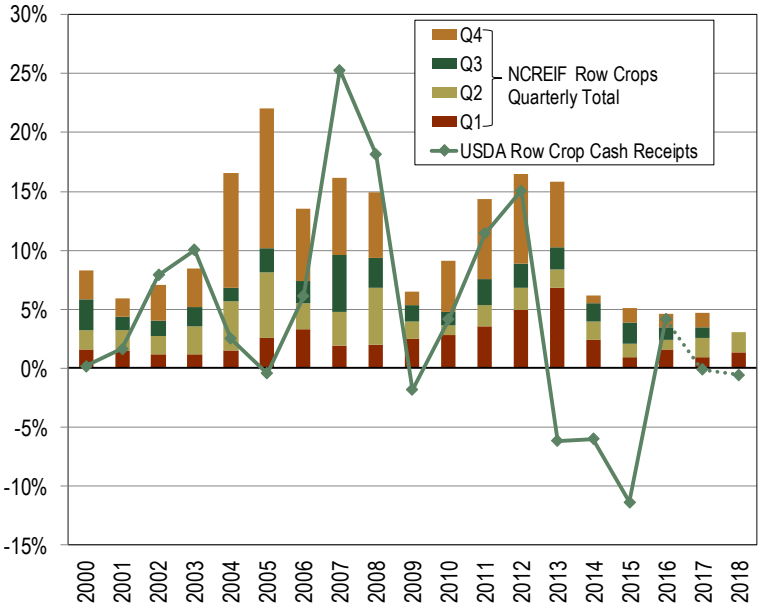


Sources: USDA NASS as of June 2018 and HNRG Research as of Q2 2018. Years are marketing years.

U.S. almond production is estimated to set a new record in the 2017 marketing year, and increase by 6% to 2.27 billion shelled pounds, however prices have increased by 3.7% to $2.53/lb., due to strong export demand. 2017/18 was an "off" year for the U.S. pistachio crop, but was still the second largest crop on record. Pistachio prices increased slightly (0.6% to $1.69/lb.). U.S. walnut production is estimated to be 9% lower in 2017 to 630,000 tons, and walnut prices increased by 36.8% in the 2017 marketing year. However, walnut exports were down significantly from the year prior and acted as a moderating influences on the price increase. The recently enacted Chinese tariffs on U.S. nuts went into effect on July 6 and brought the total tariff on pistachios to 45%, almond tariffs to 50%, and walnut in shell tariffs to 65%. These increased tariffs are likely to decrease shipments of nuts to China and lower U.S. nut prices.

Strong Global Row Crop Production Keeps Pressure on Cash Receipts in 2018

Figure 8: NCREIF Row Crops Total Return (percent per year) and USDA Row Crops Cash Receipts (y/o/y percent change)



Sources: NCREIF and HNRG Research as of Q2 2018. USDA Farm Income and Wealth Statistics as of July 2018. NCREIF data is calendar years. USDA data is marketing years. 2017 is estimated and 2018 is projected.

In 2017 U.S. row crop cash receipts are estimated to decrease by 0.01% as higher cotton, tobacco, vegetable, and melon receipts are not enough to offset declines in other row crops receipts. In 2018, row crop receipts are projected to decline by 0.56% due to declining row crop receipts for all crops except tobacco and soybeans.

NCREIF row crop total returns reflected low commodity prices. The 2Q 2018 YTD total return for NCREIF row crops was 3.05%, which was only slightly higher than the Q2 YTD return for the past 3 years.

Hancock Agricultural Investment Group is a participating member in the NCREIF Farmland Property Index. The Index requires participating managers to report all eligible properties to the Index. Usage of this data is not an offer to buy or sell properties.

Notes Farmland Market Indicators

Figure 1. Corn production is charted on a calendar year basis and updated on a marketing year basis. The corn marketing year is from September to August for the U.S., from May to April for South Africa, and from October to September for China. The corn marketing year is from March to February in Argentina and Brazil. Corn Production data and forecasts are updated on a monthly basis by the USDA World Agricultural Supply and Demand Estimates Report (WASDE).
Figure 2. Soybean production is charted on a calendar year basis and updated on a marketing year basis. The soybean marketing year is from September to August for the U.S., from February to January for Brazil and for April to March for Argentina. Soybean Production data and forecasts are updated on a monthly basis by the USDA World Agricultural Supply and Demand Estimates Report (WASDE).
Figure 3. Exchanges rates are updated on a daily basis by Macrobond Financial AB.
Figure 4. Argentina's agricultural exports are published on a monthly basis by the Argentinian Ministry of Agroindustry. Brazil export data is published on a monthly basis by Comexstat. U.S. exports are published on a monthly basis by the U.S. Census Bureau. Export data is reported on a 4 quarter moving average to adjust for seasonality.
Figure 5. Argentina's agricultural exports are published on a monthly basis by the Argentinian Ministry of Agroindustry. Brazil export data is published on a monthly basis by Comexstat. U.S. exports are published on a monthly basis by the U.S. Census Bureau. Export data is reported on a 4 quarter moving average to adjust for seasonality.
Figure 6. Row Crop Prices are published on a monthly basis by the USDA National Agricultural Statistics Service (USDA NASS).
Figure 7. Permanent Crop Prices are published on a annual basis by the USDA National Agricultural Statistics Service (USDA NASS). Almond, Pistachio and Walnut price estimates for the current year are calculated by using the percent annual changes for the crop year in the prices from HNRG sources.
Figure 8. USDA Cash Crop Receipts data is published three times a year in February, August and November by the USDA's Department of Agriculture Economic Research Service. The U.S. level calendar-year forecast is first published in February. The August release converts the previous year's forecast to estimates and the November release updates the current year forecast. NCREIF Farmland Total Return data is published on a quarterly basis. NCREIF quarterly total row crops returns are aggregated to form the total return for the year. The total return as seen on the bar chart may not equal the annual total return as reported by NCREIF, because the NCREIF annual return is calculated by multiplying instead of adding quarterly returns together.

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